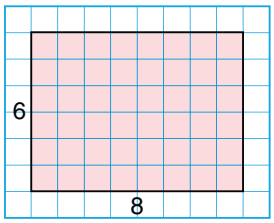
2. Determine an equivalent ratio by dividing.

a) 30 : 50 **b)** 21 : 7 **c)** 15 : 12 **d)** 18 : 36

3. Determine two equivalent ratios for each ratio.

a) 2 : 5 **b)** 125 : 500 **c)** 10 : 1 **d)** 1500 : 1000

4. The ratio of length to width for this rectangle is 8 : 6.



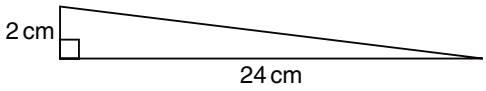
a) Use grid paper. Draw a smaller rectangle whose dimensions have the same ratio.

b) Draw a larger rectangle whose dimensions have the same ratio.

c) Amir draws a rectangle with length 26 cm and width 18 cm. Is the ratio of the dimensions of Amir's rectangle equivalent to the ratio of the dimensions of your rectangles? How do you know?

5. An architect draws a plan for a wheelchair ramp. On the plan, the ramp is 2 cm high and 24 cm long. What might the dimensions of the actual ramp be? How did you use equivalent ratios to find out?

The maximum height allowed for a wheelchair ramp is 76 cm.



We can use equivalent ratios to compare ratios.

Example

June and Megan make grape punch for a party.
June uses grape concentrate and ginger ale in the ratio 3 : 2.
Megan uses grape concentrate and ginger ale in the ratio 8 : 5.
Which punch has the stronger grape taste? Explain.

Solution

The recipe that uses more concentrate for the same volume of ginger ale has the stronger grape taste.

The volume of ginger ale is the second term of each ratio.
So, write 3 : 2 and 8 : 5 with the same second term.
The least common multiple of 2 and 5 is 10.
So, write both 3 : 2 and 8 : 5 with the second term 10.

June's punch

$3 : 2 = (3 \times 5) : (2 \times 5)$
$= 15 : 10$

Megan's punch

$8 : 5 = (8 \times 2) : (5 \times 2)$
$= 16 : 10$

The volume of concentrate is the first term of each ratio.
Megan's punch uses more concentrate for the same volume of ginger ale.
It has the stronger grape taste.

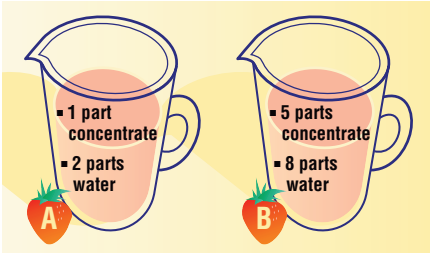
6. Refer to the *Guided Example,* page 113.

a) Write equivalent ratios for 3 : 2 and 8 : 5 with the same first term.

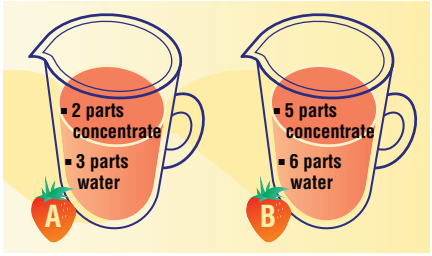
b) How do the ratios in part a help you determine which punch has the stronger grape taste?

7. Compare the strawberry punch in each pair of pitchers.
Which has the stronger strawberry taste? Explain.

a)

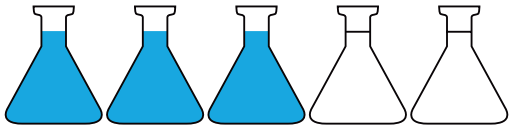


b)

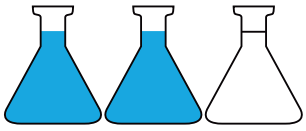


8. **Assessment Focus** Beakers of blue and clear liquids are combined.

a) Predict which set you think will produce the bluer liquid.
Justify your answer.



Set A



Set B

b) Which set does produce the bluer liquid? Explain.

c) Sketch a different set of beakers that would produce the same shade of blue as set A.

9. A loft measures 10 m by 16 m.
A scale drawing of the loft is to fit on a 21-cm by 28-cm sheet of paper.
What could the dimensions of the scale drawing be? How did you find out?

10. **Take It Further** A CD jewel case measures 12.5 cm by 14.0 cm by 1.0 cm.
A model of the case measures 5.0 cm by 5.6 cm by 0.5 cm.
One dimension on the model is incorrect.

a) Which dimension is incorrect?

b) What should the dimension be?

In Your Own Words

What are the equivalent ratios?
Explain two ways to determine a ratio that is equivalent to a given ratio.
Include examples in your explanation.